National Institute of Environmental Health Sciences

Climate change and global health: Quantifying a growing ethical crisis

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Abstract:

Climate change, as an environmental hazard operating at the global scale, poses a unique and "involuntary exposure" to many societies, and therefore represents possibly the largest health inequity of our time. According to statistics from the World Health Organization (WHO), regions or populations already experiencing the most increase in diseases attributable to temperature rise in the past 30 years ironically contain those populations least responsible for causing greenhouse gas warming of the planet. Average global carbon emissions approximate one metric ton per year (tC/yr) per person. In 2004, United States per capita emissions neared 6 tC/yr (with Canada and Australia not far behind), and Japan and Western European countries range from 2 to 5 tC/yr per capita. Yet developing countries' per capita emissions approximate 0.6 tC/yr, and more than 50 countries are below 0.2 tC/yr (or 30-fold less than an average American). This imbalance between populations suffering from an increase in climate-sensitive diseases versus those nations producing greenhouse gases that cause global warming can be quantified using a "natural debt" index, which is the cumulative depleted CO(2) emissions per capita. This is a better representation of the responsibility for current warming than a single year's emissions. By this measure, for example, the relative responsibilities of the U.S. in relation to those of India or China is nearly double that using an index of current emissions, although it does not greatly change the relationship between India and China. Rich countries like the U.S. have caused much more of today's warming than poor ones, which have not been emitting at significant levels for many years yet, no matter what current emissions indicate. Along with taking necessary measures to reduce the extent of global warming and the associated impacts, society also needs to pursue equitable solutions that first protect the most vulnerable population groups; be they defined by demographics, income, or location. For example, according to the WHO, 88% of the disease burden attributable to climate change afflicts children under age 5 (obviously an innocent and "nonconsenting" segment of the population), presenting another major axis of inequity. Not only is the health burden from climate change itself greatest among the world's poor, but some of the major mitigation approaches to reduce the degree of warming may produce negative side effects disproportionately among the poor, for example, competition for land from biofuels creating pressure on food prices. Of course, in today's globalized world, eventually all nations will share some risk, but underserved populations will suffer first and most strongly from climate change. Moreover, growing recognition that society faces a nonlinear and potentially irreversible threat has deep ethical implications about humanity's stewardship of the planet that affect both rich and poor.

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Air Pollution, Temperature, Unspecified Exposure

Temperature: Fluctuations

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Geographic Location:

resource focuses on specific location

Global or Unspecified

Health Co-Benefit/Co–Harm (Adaption/Mitigation):

specification of beneficial or harmful impacts to health resulting from efforts to reduce or cope with greenhouse gases

A focus of content

Health Impact:

specification of health effect or disease related to climate change exposure

General Health Impact

Mitigation/Adaptation:

mitigation or adaptation strategy is a focus of resource

Adaptation, Mitigation

Model/Methodology:

type of model used or methodology development is a focus of resource

Cost/Economic, Other Projection Model/Methodology

Other Projection Model/Methodology: discussion only

Population of Concern: A focus of content

Population of Concern:

populations at particular risk or vulnerability to climate change impacts

Low Socioeconomic Status

Resource Type:

format or standard characteristic of resource

Review

Timescale:

time period studied

Time Scale Unspecified

Vulnerability/Impact Assessment: ☑

resource focus on process of identifying, quantifying, and prioritizing vulnerabilities in a system

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